



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,827	08/13/2001	Edwin J. Oakey	1543-000002	8746

27572 7590 03/28/2003

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. BOX 828  
BLOOMFIELD HILLS, MI 48303

EXAMINER
----------

NGUYEN, THUKHANH T

ART UNIT	PAPER NUMBER
1722	10

DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application N .	Applicant(s)	
	09/928,827	OKEY ET AL.	
	Examiner	Art Unit	
	Thu Khanh T. Nguyen	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on \_\_\_\_\_.  
 2a) This action is FINAL.                  2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.  
**Disposition of Claims**  
 4) Claim(s) 1-38 is/are pending in the application.  
     4a) Of the above claim(s) 1-25 and 36-38 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_.is/are allowed.  
 6) Claim(s) 26-35 is/are rejected.  
 7) Claim(s) \_\_\_\_\_.is/are objected to.  
 8) Claim(s) \_\_\_\_\_. are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_.is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 11) The proposed drawing correction filed on \_\_\_\_\_.is: a) approved b) disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.  
 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.  
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) The translation of the foreign language provisional application has been received.  
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. 
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 26 and 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Weisner et al (4,278,414).

Weisner et al ('414) teach an apparatus and method for forming plastic skylights. The method comprises the steps of (claim 26):

1 - heating the sheet to a first temperature or a forming state (46; col. 1, last line to col. 2, 1<sup>st</sup> line),

2 - terminating heating of the sheet by removing the sheet from the heating station (col. 2, lines 1-2),

3 - retaining the sheet between the first and second mold halves with the sheet being supported along a peripheral edge of the mold halves (Fig. 6; col. 3, lines 51-60),

4 - generating a vacuum on one side of the sheet to draw the sheet into an interior space of one of the mold halves while the center portion of the sheet remains supported in space relationship to the mold halves (Fig. 6, col. 3, line 62 to col. 4, line 2 – claim 32); and

5 – cooling the sheet to a second temperature by removing the sheet from the heating station, by vacuum forming in which the mold might not be heated (col. 4, lines 43-44), and by unloading the sheet from the forming station (col. 4, lines 2-4 – claim 26 & 32).

Wherein the first temperature is greater than or equal to the glass transition temperature in order for the sheet material to be softened and to be reformed (col. 3, lines 51-64 – claim 33); and wherein the second temperature is less than a glass transition temperature of the sheet in order for the formed article retaining the shape after molding (col. 4, lines 2-5 – claim 34).

Further heating of the sheet occurs in stages (col. 4, lines 35-43 – claim 35).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weisner et al ('414) as applied to claims 26 and 32-35 above, and further in view of Weisner et al (4,352,776).

Weisner et al ('414) disclose a method for forming skylights as described above, but fail to disclose the step of detecting a draw depth of the sheet within the mold half and the step of trimming a perimeter of the sheet to a desired shape.

Weisner et al ('776) disclose an apparatus and method for fabricating polycarbonate skylights, comprising the steps of:

- i - trimming the sheet to a predetermined size and shape (col. 7, lines 58-59);
- ii - detecting the draw depth of the sheet in between the mold (col. 8, lines 47-51) for turning off the vacuum and start the cooling step, and

Art Unit: 1722

iii - turning off the vacuum (col. 8, lines 50-52) by any means such as a photo cell, a micro-switch.

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Weisner et al ('414) by providing the steps of trimming and detecting the draw depth of the sheet as taught by Weiner et al ('776) because the step of trimming the sheet would result in products having a predetermined size and shape ('776; col. 7, line 59), while the step of detecting the draw depth of the sheet would facilitate the controlling of the height product being formed ('776; col. 8, line 49).

5. Claims 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weisner et al ('414) in view of Weisner et al ('776) as applied to claims 26, 27, 29 and 32-35 above, and further in view of Bangerter et al (4,603,329).

Weisner et al disclose a method for forming skylights as described above, in which the vacuum is turned off by controlling the height of the dorm, but fails to disclose that the step of detecting the draw depth using a laser and sensor.

Bangerter et al disclose a device and method for sensing the present of the formed article comprising a sensor and a laser (col. 3, lines 28-30).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Weisner et al by providing a laser and sensor as taught by Bangerter et al, because the laser and the sensor would be more accurate in determining the position of the forming article compared to other sensors.

Art Unit: 1722

6. Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weisner et al ('414) in view of Weisner et al ('776) as applied to claims 26, 27, 29 and 32-35 above, and further in view of Christensen et al (6,367,361).

Weisner et al disclose a method of forming a plastic sheet into skylights, including the step of trimming the sheet to an appropriate size and shape before forming, but fail to disclose that the trimming was done by using a blade or a series of blades disposed about a perimeter of the mold half.

Christensen et al disclose a method and an apparatus for trimming thermoformed films, comprising the step of trimming the formed films by using a plurality of movable blades (38) for trimming a three-dimensional film-preform (col. 4, lines 15-25).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Weisner et al by providing a blade or a plurality of blades around the peripheral of the forming mold as taught by Christensen et al, because the blades would facilitate the trimming of the sheet at different locations and dimensions.

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 26-35 have been considered but are moot in view of the new ground(s) of rejection.

As agreed with the Attorney during the interview, Weisner et al ('776) fail to disclose the step of heating the sheet prior to placing the sheet into the mold halves. However, when updated the search, Weisner et al ('414) has been found. This reference discloses the step of completing the heating of the sheet material prior to place the sheet into the mold cavity, in

Art Unit: 1722

which the sheet is freely drawn by the vacuum to form a dome-shaped article. Weisner et al ('776) disclose the steps of trimming and detecting a draw depth of the sheet. Bangerter et al disclose the step of using sensor and laser to detect the position of the sheet. Christensen et al disclose the step of trimming the formed products by the blades. It would have been obvious to a skilled artisan to improved Weisner et al ('414) by providing additional steps such as trimming the film to form articles with a predetermined size and shape by a plurality of blade, so that the trimming can be controlled at different position, detecting the sheet position by a laser sensing means as taught by Weisner ('776), Bangerter and Christensen to improve the process of free drawing sheet material.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1722

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Khanh T. Nguyen whose telephone number is 703-305-7167. The examiner can normally be reached on Monday- Friday, 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

TN  
March 18, 2003

*Walker*  
W. L. WALKER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700